Specifications





variable speed drive, Altivar Machine ATV320, 0.55kW, 380 to 500V, 3 phases, compact

ATV320U06N4C

Main

Range Of Product	Altivar Machine ATV320
Product Or Component Type	Variable speed drive
Product Specific Application	Complex machines
Variant	Standard version Standard version
Format Of The Drive	Compact
Mounting Mode	Wall mount
Communication Port Protocol	Modbus serial CANopen
Option Card	Communication module, CANopen Communication module, EtherCAT Communication module, Profibus DP V1 Communication module, PROFINET Communication module, Ethernet Powerlink Communication module, EtherNet/IP Communication module, DeviceNet
[Us] Rated Supply Voltage	380500 V - 1510 %
Nominal Output Current	1.9 A
Motor Power Kw	0.55 kW for heavy duty
Emc Filter	Class C2 EMC filter integrated
Ip Degree Of Protection	IP20

Complementary

Discrete Input Number	7
Discrete Input Type	STO safe torque off, 24 V DC, impedance: 1.5 kOhm DI1DI6 logic inputs, 24 V DC (30 V) DI5 programmable as pulse input: 030 kHz, 24 V DC (30 V)
Discrete Input Logic	Positive logic (source) Negative logic (sink)
Discrete Output Number	3
Discrete Output Type	Open collector DQ+ 01 kHz 30 V DC 100 mA Open collector DQ- 01 kHz 30 V DC 100 mA
Analogue Input Number	3
Analogue Input Type	Al1 voltage: 010 V DC, impedance: 30 kOhm, resolution 10 bits Al2 bipolar differential voltage: +/- 10 V DC, impedance: 30 kOhm, resolution 10 bits Al3 current: 020 mA (or 4-20 mA, x-20 mA, 20-x mA or other patterns by configuration), impedance: 250 Ohm, resolution 10 bits
Analogue Output Number	1

Analogue Output Type Software-configurable current AQ1: 020 mA impedance 800 Ohm, resolut bits Software-configurable voltage AQ1: 010 V DC impedance 470 Ohm, resolut bits Software-configurable voltage AQ1: 010 V DC impedance 470 Ohm, resolut bits Relay Output Type Configurable relay logic R1A 1 NO electrical durability 100000 cycles Configurable relay logic R1D NC electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2A 1 NO electrical durability 100000 cycles Configurable relay logic R2C Maximum Switching Current Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 1: 3 A at 30 V DC Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 an ms: 2 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Minimum Switching Current Relay output R1A, R1B, R1	on 10
Configurable relay logic R1B 1 NC electrical durability 100000 cycles Configurable relay logic R2 Maximum Switching Current Relay output R1A, R1B, R1C on resistive load, cos phi = 1: 3 A at 250 V AC Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 an ms: 2 A at 30 V DC Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 an ms: 2 A at 30 V DC Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 an ms: 2 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 0.4 an ms: 2 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Minimum Switching Current Relay output R1A, R1B, R1C, R2A, R2C: 5 mA at 24 V DC Method Of Access Slave CANopen 4 Quadrant Operation Possible True Asynchronous Motor Control Voltage/frequency ratio, 5 points Profile Voltage/frequency ratio, 5 points Profile Vector control without sensor - Energy Saving, quadratic U/f Flux vector control without sensor Energy Saving Voltage/frequency ratio, 2 points<	ution 10
Configurable relay logic R2C Maximum Switching Current Relay output R1A, R1B, R1C on resistive load, cos phi = 1: 3 A at 30 V DC Relay output R1A, R1B, R1C, neasistive load, cos phi = 1: 3 A at 30 V DC Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 an ms: 2 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 250 V AC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Minimum Switching Current Relay output R1A, R1B, R1C, R2A, R2C: 5 mA at 24 V DC Method Of Access Slave CANopen 4 Quadrant Operation Possible True Asynchronous Motor Control Profile Voltage/frequency ratio, 5 points Flux vector control without sensor, standard Voltage/frequency ratio, 2 points Synchronous Motor Control Profile Vector control without sensor Energy Saving, quadratic U/f Flux vector control without sensor Synchronous Motor Control Profile Vector control without sensor Energy Saving Voltage/frequency ratio, 2 points Synchronous Motor Control Voltage/frequency U S CUS Ramp switching Acceleration And Deceleration Acceleration/deceleration ramp adaptation Acceleration/deceleration ramp adaptation Acceleration/deceleration automatic stop with DC injection Motor Slip Compensation Automatic whatever the load Adjustable 0300 %	
Relay output R1A, R1B, R1C on resistive load, cos phi = 1: 3 A at 30 V DC Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 an ms: 2 A at 250 V AC Relay output R1A, R1B, R1C, R2A, R2C on inductive load, cos phi = 0.4 an ms: 2 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Relay output R2A, R2C on resistive load, cos phi = 1: 5 A at 30 V DC Minimum Switching Current Relay output R1A, R1B, R1C, R2A, R2C is mA at 24 V DC Method Of Access Slave CANopen 4 Quadrant Operation Possible True Asynchronous Motor Control Voltage/frequency ratio, 5 points Profile Voltage/frequency ratio, 5 points Flux vector control without sensor, standard Voltage/frequency ratio, 2 points Synchronous Motor Control Vector control without sensor Profile Voltage/frequency ratio, 2 points Synchronous Motor Control Vector control without sensor Profile To200 % of nominal motor torque Maximum Output Frequency 0.599 kHz Acceleration And Deceleration Linear S CUS Ramps U S CUS Ramp switching <t< td=""><td></td></t<>	
Method Of Access Slave CANopen 4 Quadrant Operation Possible True Asynchronous Motor Control Profile Voltage/frequency ratio, 5 points Flux vector control without sensor, standard Voltage/frequency ratio - Energy Saving, quadratic U/f Flux vector control without sensor - Energy Saving Voltage/frequency ratio, 2 points Synchronous Motor Control Profile Vector control without sensor - Energy Saving Voltage/frequency ratio, 2 points Synchronous Motor Control Profile Vector control without sensor Transient Overtorque 170200 % of nominal motor torque Maximum Output Frequency 0.599 kHz Acceleration And Deceleration Ramps Linear U S CUS Ramp switching Acceleration/deceleration ramp adaptation Acceleration/deceleration automatic stop with DC injection Motor Slip Compensation Automatic whatever the load Adjustable 0300 %	d L/R = 7
4 Quadrant Operation Possible True Asynchronous Motor Control Profile Voltage/frequency ratio, 5 points Flux vector control without sensor, standard Voltage/frequency ratio - Energy Saving, quadratic U/f Flux vector control without sensor - Energy Saving Voltage/frequency ratio, 2 points Synchronous Motor Control Profile Vector control without sensor Transient Overtorque 170200 % of nominal motor torque Maximum Output Frequency 0.599 kHz Acceleration And Deceleration Ramps Linear U S CUS Ramp switching Acceleration/deceleration ramp adaptation Acceleration/deceleration automatic stop with DC injection Motor Slip Compensation Automatic whatever the load Adjustable 0300 %	
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Adjustable 0300 %	
Switching Frequency 216 kHz adjustable 416 kHz with derating factor	
Nominal Switching Frequency 4 kHz	
Braking To Standstill By DC injection	
Brake Chopper Integrated True	
Line Current 2.8 A at 380 V (heavy duty) 2.2 A at 500 V (heavy duty)	
Maximum Input Current 2.8 A	
Maximum Output Voltage 500 V	
Apparent Power 1.9 kVA at 500 V (heavy duty)	
Network Frequency 5060 Hz	
Relative Symmetric Network 5 % Frequency Tolerance	
Prospective Line Isc 5 kA	
Base Load Current At High 7.1 A Overload	
Power Dissipation In W Fan: 27.0 W at 380 V, switching frequency 4 kHz	
With Safety Function Safely True Limited Speed (SIs)	

With Safety Function Safe Brake Management (Sbc/Sbt)	False
With Safety Function Safe Operating Stop (Sos)	False
With Safety Function Safe Position (Sp)	False
With Safety Function Safe Programmable Logic	False
With Safety Function Safe Speed Monitor (Ssm)	False
With Safety Function Safe Stop 1 (Ss1)	True
With Sft Fct Safe Stop 2 (Ss2)	False
With Safety Function Safe Torque Off (Sto)	True
With Safety Function Safely Limited Position (SIp)	False
With Safety Function Safe Direction (Sdi)	False
Protection Type	Input phase breaks: drive Overcurrent between output phases and earth: drive Overheating protection: drive Short-circuit between motor phases: drive Thermal protection: drive
Width	105.0 mm
Height	142.0 mm
Depth	158.0 mm
Net Weight	1.2 kg

Environment

Operating Position	Vertical +/- 10 degree
Product Certifications	CE ATEX NOM GOST EAC RCM KC
Marking	CE ATEX UL CSA EAC RCM
Standards	IEC 61800-5-1
Electromagnetic Compatibility	Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-3 Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4 1.2/50 µs - 8/20 µs surge immunity test level 3 conforming to IEC 61000-4-5 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6 Voltage dips and interruptions immunity test conforming to IEC 61000-4-11
Environmental Class (During Operation)	Class 3C3 according to IEC 60721-3-3 Class 3S2 according to IEC 60721-3-3
Maximum Acceleration Under Shock Impact (During Operation)	150 m/s² at 11 ms
Maximum Acceleration Under Vibrational Stress (During Operation)	10 m/s² at 13200 Hz
Maximum Deflection Under Vibratory Load (During Operation)	1.5 mm at 213 Hz
Permitted Relative Humidity (During Operation)	Class 3K5 according to EN 60721-3

Life Is On Schneider

Volume Of Cooling Air	18.0 m3/h
Overvoltage Category	III
Regulation Loop	Adjustable PID regulator
Speed Accuracy	+/- 10 % of nominal slip 0.2 Tn to Tn
Pollution Degree	2
Ambient Air Transport Temperature	-2570 °C
Ambient Air Temperature For Operation	-1050 °C without derating 5060 °C with derating factor
Ambient Air Temperature For Storage	-2570 °C

Packing Units

Unit Type Of Package 1	PCE
Number Of Units In Package 1	1
Package 1 Height	18.000 cm
Package 1 Width	18.500 cm
Package 1 Length	18.700 cm
Package 1 Weight	1.672 kg
Unit Type Of Package 2	P06
Number Of Units In Package 2	30
Package 2 Height	75.000 cm
Package 2 Width	60.000 cm
Package 2 Length	80.000 cm
Package 2 Weight	63.340 kg

Sustainability Screen Premium

Green PremiumTM label is Schneider Electric's commitment to delivering products with best-inclass environmental performance. Green Premium promises compliance with the latest regulations, transparency on environmental impacts, as well as circular and low-CO₂ products.

Guide to assessing product sustainability is a white paper that clarifies global eco-label standards and how to interpret environmental declarations.

Learn more about Green Premium >

Guide to assess a product's sustainability >



Transparency RoHS/REACh

Resource performance

Upgraded Components Available

Well-being performance

Mercury Free

Rohs Exemption Information Yes

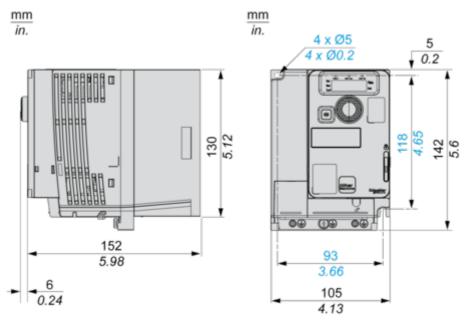
Certifications & Standards

Reach Regulation	REACh Declaration
Eu Rohs Directive	Pro-active compliance (Product out of EU RoHS legal scope)
China Rohs Regulation	China RoHS declaration
Environmental Disclosure	Product Environmental Profile
Weee	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins
Circularity Profile	End of Life Information

Dimensions Drawings

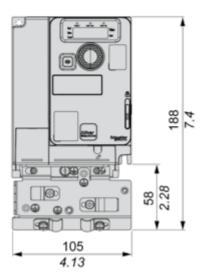
Dimensions

Right View, Front View and Front View with EMC Plate





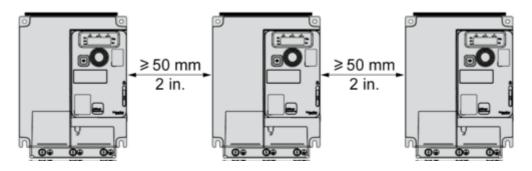
in.



Mounting and Clearance

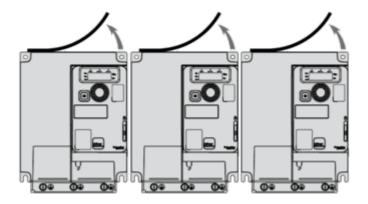
Mounting Types

Mounting Type A: Individual with Ventilation Cover

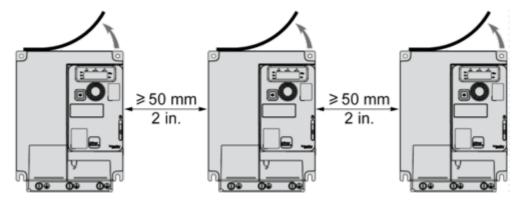


Only Possible at Ambient Temperature Less or Equal to 50 °C (122 °F)

Mounting Type B: Side by Side, Ventilation Cover Removed



Mounting Type C: Individual, Ventilation Cover Removed



For Operation at Ambient Temperature Above 50 °C (122 ��F)

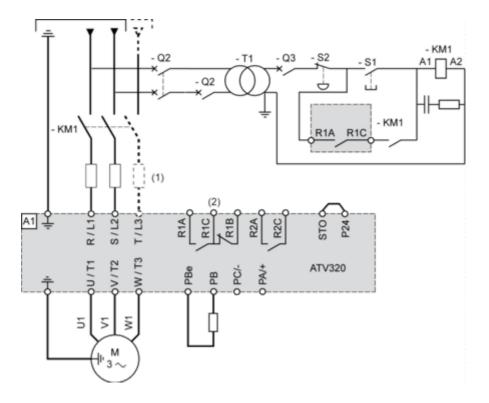
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Connections and Schema

Connection Diagrams

Diagram with Line Contactor

Connection diagrams conforming to standards ISO13849 category 1 and IEC/EN 61508 capacity SIL1, stopping category 0 in accordance with standard IEC/EN 60204-1.

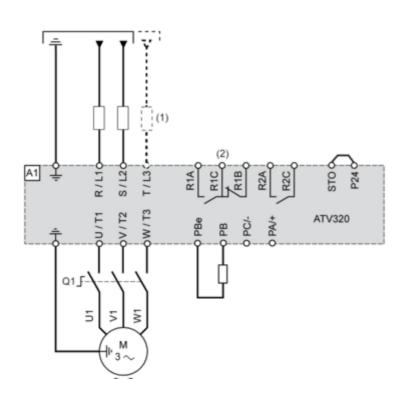


(1) Line choke (if used)

(2) Fault relay contacts, for remote signaling of drive status

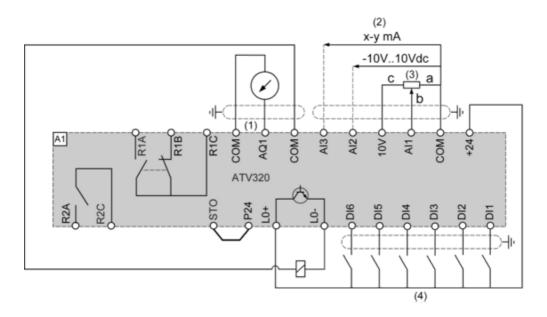
Diagram with Switch Disconnect

Connection diagrams conforming to standards EN 954-1 category 1 and IEC/EN 61508 capacity SIL1, stopping category 0 in accordance with standard IEC/EN 60204-1.



(1) Line choke (if used)(2) Fault relay contacts, for remote signaling of drive status

Control Connection Diagram in Source Mode



(1) Analog output

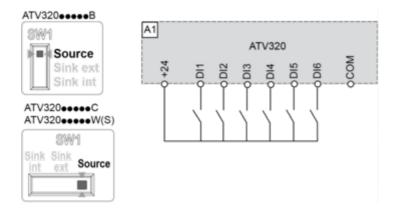
- (2) Analog inputs
- (3) Reference potentiometer (10 kOhm maxi)
- (4) Digital inputs

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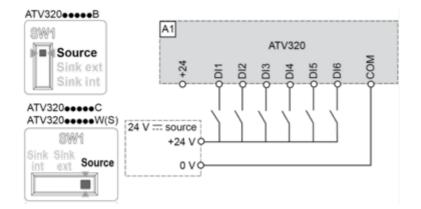
Digital Inputs Wiring

The logic input switch (SW1) is used to adapt the operation of the logic inputs to the technology of the programmable controller outputs.

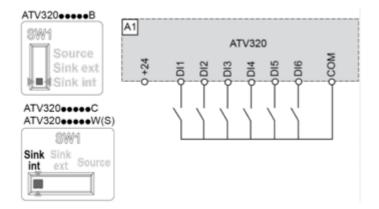
Switch SW1 set to "Source" position and use of the output power supply for the DIs.



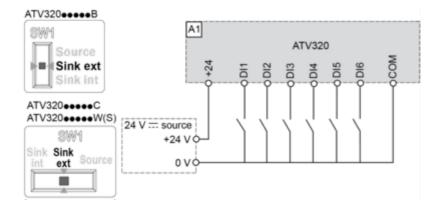
Switch SW1 set to "Source" position and use of an external power supply for the DIs.



Switch SW1 set to "Sink Int" position and use of the output power supply for the DIs.

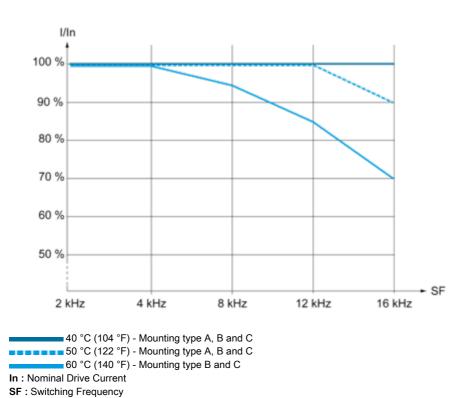


Switch SW1 set to "Sink Ext" position and use of an external power supply for the DIs.



Performance Curves

Derating Curves



25-Apr-2024